HB-Therm®
THERMO-5

Temperature Control Units

USA-Edition 2026-07

Temperature Control Units Thermo-5

Regulated mould temperatures are essential for plastics injection moulding.

Temperature control units regulate mould temperatures through a liquid heat carrier by controlled inducing or dissipating of heat.

Thermo-5 units provide efficient and reliable operation and are used to control temperatures in injection moulding or similar processes.

...precise, powerful and efficient

Highly accurate temperature control
- ±0.1 °F with self-optimizing regulation
- Calibration of temperature, pressure and flow rate measurement
- Quality inspection certificate

Short heating and cooling times
- The tankless system tempers only as much heat carrier as necessary

Uses lower heating and cooling energy
- Minimal circulation volume requires less power
- Clever cooling concept reduces losses

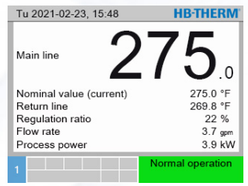
Energy efficient pump – Eco-pump *
- Energy savings by variable speed pump

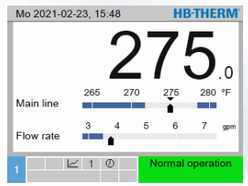
...easy, intelligent and convenient

Simple operation
- Well-arranged menus in 21 languages
- Intuitive navigation
- On-the-spot instructions at the push of a button

Bright display
- Easily legible with high contrast
- Free choice of display windows and values

Convenient functions
- Fully automated mould cooling and evacuation *
- Recording of data via USB and analysis in Excel
- Store function for mould specific parameters
- Control also via the machine





...safe, reliable and low on maintenance

Fully automated process monitoring
- Continuous monitoring of temperature, flow and pressure
- Highly accurate ultrasonic flow rate measurement
- Detection of hose ruptures and leaks
- Pump status is monitored *

Durable construction
- Solely non-corroding materials in the hydraulic circuit
- Heating elements without direct contact to the heat transfer medium
  ► Lifetime warranty on the heater
- Bypass and proportional valve result in vaporisation-free cooling and low-scaling *
- Sealless pump in stainless steel

Improved protection for the mould
- Closed system without oxygen contact
- Completely automatic purging of air
- Active regulation of pressure – only as much as necessary *

...small, clean and quiet

Squeezes into almost everywhere
- Made possible by ingenious hydraulic modules and a tankless system

Can also be used in a clean room *
- Fibre-free insulation, abrasion resistant castors and high-gloss finish

Draws attention only when necessary
- Intelligent monitoring of all processes

* Some features may not apply, depending on the model

Most models in the Thermo-5 temperature control unit series have already been replaced by the successor generation Thermo-6.

Standard Equipment

Hydraulics		Closed system without oxygen contact, with efficient automatic deaeration, automatic filling
		Temperature measurement in main line and return line with sensor Pt 1000
		Continuous maintenance-free ultrasonic flow meter
		Low-scaling and pressure shock-free cooling with cooling water filter and proportional valve
		Proportionally controlled cooler bypass (on units over 212 °F)
		Sealless pump in stainless steel
		Hydraulic circuit made of non-corroding materials
		Heating elements without direct contact to the heat transfer medium
		Easy to modify for separate supply of system water (on water units)
		Booster pump for system filling (on water units over 212 °F)
		Controlled superimposed system pressure (on water units)
		Bypass and return line filter
		Heat transfer circuit with superimposed cold oil (on oil units)
		Tank with level measuring for expansion and mould evacuation (on oil units)
Functions		Mould emptying by pump reversal (not possible with: **8R**)
		Even load distribution at all heating stages with solid-state relays
		Auto-tuning cascade control
		Control on either main line or return line (or external sensor **ZE**)
		Cooling with automatic switch-off programme
		Change-over to second nominal value
		Nominal value ramp and ramp programme
		Cyclical system water exchange (selectable)
Monitoring / Safety		Automatic limit value setting
		Monitoring of various process parameters
		Hose rupture and leakage monitor
		Sensor failure monitor
		Pump and heater current monitor
		Dry-running protection
		Triple safety cut-out for heating
		Pressure enabling with device OFF (not possible with: **8R**)
		Safety relief valve and pressure gauge on rear of unit
		Automatic phase direction adaptation and phase monitor
		Lockable and abrasion resistant castors (PUR)
Command / Display		TFT-Colour display 3,5” with interactive user guidance in 21 languages
		Help button with context sensitive information
		Display of flow rate, pump pressure, process power and energie savings
		Large choice of display windows and values
		Temperature display in 0.1 °F
		Units of measurement for temperature, flow rate and pressure can be set
		Visual and acoustic alarms; volume adjustable
		Store function for mould specific parameters
		Display of date and time
		Timer
		Operating hours counter and service interval display
		Logbook for alarms
		Data input password protected
Interface	USB	Connection (Host/Device) for software updates, parameter transfer and data recording
	HB	HB-Therm data interface CAN to connect modular units, flow meters Flow-5 and switching units Vario-5 (1 socket Sub-D 15 pin, female)

Note: Modular units do not have a proper command

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Additional Equipment

ZL	**Leak stopper**	With automatic vacuum optimisation (up to 158 °F, not possible with: **B2**)
ZB	**Connection for alarm and external control**	Alarm using potential-free contact (rating max. 250 VAC, 4 A)
		Unit ON/OFF, ramp programme ON/OFF and switching nominal value 1 or 2 using potential-free contact
		1 socket Harting Han 7D (male), connecting cable with plug included, 12.7 ft (6 m)
ZE	**Connection for external sensor**	Thermocouple type J, K, T or Pt 100 in 3-wire system, with selectable production detector
		1 socket Audio 5 pin (female), connector 90° (male) included
ZD	**Interface DIGITAL**	Serial data interface 20 mA, RS-232 or RS-422/485
		Various protocols selectable: Arburg, Billion, Bühler, Dr. Boy, Engel, Ferromatik Milacron, Haitian, KraussMaffei, MODBUS (RTU-Mode), Negri Bossi, SPI (Fanuc, etc.), Stork, Sumitomo Demag, Wittmann Battenfeld, Zhafir
		2 sockets Sub-D 25 pin (female)
ZC	**Interface CAN**	Serial data interface CAN-bus (Sumitomo Demag) and CANopen (EUROMAP 66; Netstal, etc.)
		To remotely control singular units
		2 sockets Sub-D 9 pin (1 male and 1 female)
ZO	**Interface OPC UA**	Ethernet interface (EUROMAP 82.1)
		1 socket RJ-45 (female)
ZP	**Interface PROFIBUS-DP**	Serial data interface PROFIBUS-DP
		1 Sub-D 9-pin socket (not possible with: **ZC**)
ZU	**Pump status monitor**	Additional pressure sensor in main line
ZK	**Keyboard-protection**	Transparent flap over display and controls
ZR	**Clean room package**	Clean room capable version: ‘At Rest’ < ISO class 6 (US class 1 000) ‘In Operation’ ISO class 7 (US class 10 000)
		Fibre-free insulation
ZG	**Mould evacuation with compressed air**	Replaces mould evacuation by pump reversal
		Connection, compressed air (P. 16, Fig. 5)
		Pressure: 29–116 psi; Thread: G¼; Resistance: 145 psi, 212 °F

Singular Unit

Modular Unit

Temperature control units Thermo-5 are available as singular or modular units. Contrary to singular units, modular units do not have a proper command and display. They can only be controlled via a singular unit or a control module Panel-5 but thus enable a common changing of parameters as well as a remote control. The units are linked to the master and among each other always via the interface HB. Further, modular units have a cost advantage over the singular units and are distinguished from the latter by adding the letter M to the unit designation
(e. g. HB-140Z**M**4).

Communication (P. 13, Fig. 1)

212 °F

Single units
Water, direct cooling

HB-Therm® THERMO-5

Temperature control unit	Heat transfer medium		Water					
	Cooling		Direct					
Type			**HB-100X**					
	Housing size (P. 16, Fig. 5)		**1**	**1L**	**2**	**2L**	**3**	**4**
	with maximum main line temperature in °F		212	212	212	212	212	212
Heating (P. 14, Fig. 2)	kW	**8**	●	●				
		16			●	●	●	●
		32					○	○
Pump (60 Hz; all pumps are in stainless steel; P. 14, Fig. 3)								
	sealless (0,6 kW; 35 L/min, 68 m) 0.8 hp; 9.2 gpm, 99 psi	**2M**	●		●			
	sealless (1,1 kW; 55 L/min, 70 m) 1.5 hp; 15 gpm, 102 psi	**4M**	○		○ [1]		○	
	Eco-pump, sealless (1,1 kW; 60 L/min, 70 m) 1.5 hp; 16 gpm, 102 psi	**4S**		●		●		
	(2,8 kW; 110 L/min, 70 m) 3.8 hp; 29 gpm, 102 psi	**6G**					●	
	sealless (2,8 kW; 110 L/min, 70 m) 3.8 hp; 29 gpm, 102 psi	**6M**					○	
	(4,0 kW; 160 L/min, 70 m) 5.4 hp; 42 gpm, 102 psi	**8G**					○	
	sealless (4,0 kW; 160 L/min, 70 m) 5.4 hp; 42 gpm, 102 psi	**8M**					○	
	Eco-pump, sealless (2,2 kW; 220 L/min, 65 m) 3 hp; 58 gpm, 94 psi	**8R**						●
Cooling (P. 15, Fig. 4)	(38 kW @ 60 K) 11 tons @ 108 °F	**B1**	●	●	●	●		
	(110 kW @ 60 K) 31 tons @ 108 °F	**E1**					●	●
Additional Equipment								
	Connection for alarm and external control	**ZB**	○	○	○	○	○	○
	Connection for external sensor	**ZE**	○	○	○	○	○	○
	Interface DIGITAL	**ZD**	○	○	○	○	○	○
	Interface CAN	**ZC**	○	○	○	○	○	○
	Interface OPC UA	**ZO**	○	○	○	○	○	○
	Interface PROFIBUS-DP	**ZP**	○	○	○	○	○	○
	Pump status monitor	**ZU**	○	●	○	●	○	●
	Keyboard-protection	**ZK**	○	○	○	○	○	○
	Clean room package	**ZR**	○	○	○	○	○	○
	Mould evacuation with compressed air	**ZG**	○ [2]	○ [2]	○ [2]	○ [2]	○ [2]	○ [2]
Mains voltage	400 V (380–415 V), 60 Hz (50/60 Hz); 3LPE	**406**	○	○	○	○	○	○
	460 V (440–480 V), 60 Hz; 3LPE	**466**	●	●	●	●	●	●
	210 V (200–220 V), 60 Hz (50/60 Hz); 3LPE	**216**	○	○	○	○	○	○

Ordering example: HB-100X4-16-8R-E1-ZD, 466, English

● Standard specification ○ Optional [1] Typical specification
[2] Only possible through the cooling water outlet
□ Replaced by Thermo-6

Flow rate measurement	Measuring range	gpm	0.1–10.6	0.1–10.6	0.1–10.6	0.1–10.6	0.5–42	0.5–53
Circulating volume in unit	approx.	gal	0.26	0.26	0.42	0.42	1.7	1.7
Dimensions (P. 16, Fig. 5)	Height	in	20.1	20.1	27.6	27.6	33.5	25.6
	Width	in	7.1	7.1	9.4	9.4	11.8	15.8
	Depth	in	26	28.8	26	28.8	38.7	41.9
Weight max.		lb	110	121	137	150	300	309
Connection, main line and return line	Thread		G¾	G¾	G¾	G¾	G1 ¼	G1 ¼
	Resistance	psi, °F	290, 248	290, 248	290, 248	290, 248	290, 248	290, 248
Connection, cooling water	Pressure	psi	29–73	29–73	29–73	29–73	29–73	29–73
	Thread		G⅜	G⅜	G⅜	G⅜	G¾	G¾
	Resistance	psi, °F	145, 212	145, 212	145, 212	145, 212	145, 212	145, 212
Connection, drain	Thread		G⅜	G⅜	G⅜	G⅜	G½	G½

212 °F

Single units
Water, indirect cooling

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Temperature control unit	Heat transfer medium		Water					
	Cooling		Indirect					
Type			**HB-100Z**					
	Housing size (P. 16, Fig. 5)		**1**	**1L**	**2**	**2L**	**3**	**4**
	with maximum main line temperature in °F		212	212	212	212	212	212
Heating (P. 14, Fig. 2)	kW	**8**	●	●				
		16			●	●	●	●
		32					○	○
Pump (60 Hz; all pumps are in stainless steel; P. 14, Fig. 3)								
	sealless (0,6 kW; 35 L/min, 68 m) 0.8 hp; 9.2 gpm, 99 psi	**2M**	●		●			
	sealless (1,1 kW; 55 L/min, 70 m) 1.5 hp; 15 gpm, 102 psi	**4M**	○		○ [1]		○	
	Eco-pump, sealless (1,1 kW; 60 L/min, 70 m) 1.5 hp; 16 gpm, 102 psi	**4S**		●		●		
	(2,8 kW; 110 L/min, 70 m) 3.8 hp; 29 gpm, 102 psi	**6G**					●	
	sealless (2,8 kW; 110 L/min, 70 m) 3.8 hp; 29 gpm, 102 psi	**6M**					○	
	(4,0 kW; 160 L/min, 70 m) 5.4 hp; 42 gpm, 102 psi	**8G**					○	
	sealless (4,0 kW; 160 L/min, 70 m) 5.4 hp; 42 gpm, 102 psi	**8M**					○	
	Eco-pump, sealless (2,2 kW; 220 L/min, 65 m) 3 hp; 58 gpm, 94 psi	**8R**						●
Cooling (P. 15, Fig. 4)	(30 kW @ 60 K) 8.5 tons @ 108 °F	**A2**	●	●	●	●		
	(50 kW @ 60 K) 14 tons @ 108 °F	**B2**	○	○	○	○		
	(90 kW @ 60 K) 26 tons @ 108 °F	**C2**					●	●
Additional Equipment	Leak stopper	**ZL**	○ [3]	○ [3]	○ [3]	○ [3]		
	Connection for alarm and external control	**ZB**	○	○	○	○	○	○
	Connection for external sensor	**ZE**	○	○	○	○	○	○
	Interface DIGITAL	**ZD**	○	○	○	○	○	○
	Interface CAN	**ZC**	○	○	○	○	○	○
	Interface OPC UA	**ZO**	○	○	○	○	○	○
	Interface PROFIBUS-DP	**ZP**	○	○	○	○	○	○
	Pump status monitor	**ZU**	○	●	○	●	○	●
	Keyboard-protection	**ZK**	○	○	○	○	○	○
	Clean room package	**ZR**	○	○	○	○	○	○
	Mould evacuation with compressed air	**ZG**	○	○	○	○	○	○
Mains voltage	400 V (380–415 V), 60 Hz (50/60 Hz); 3LPE	**406**	○	○	○	○	○	○
	460 V (440–480 V), 60 Hz; 3LPE	**466**	●	●	●	●	●	●
	210 V (200–220 V), 60 Hz (50/60 Hz); 3LPE	**216**	○	○	○	○	○	○

Ordering example: HB-100Z4-32-8R-C2-ZE, 466, English

● Standard specification ○ Optional [1] Typical specification
[3] Not possible with: **B2** □ replaced by Thermo-6

Flow rate measurement	Measuring range	gpm	0.1–10.6	0.1–10.6	0.1–10.6	0.1–10.6	0.5–42	0.5–53
Circulating volume in unit	approx.	gal	0.32	0.32	0.48	0.48	1.7	1.7
Dimensions (P. 16, Fig. 5)	Height	in	20.1	20.1	27.6	27.6	33.5	25.6
	Width	in	7.1	7.1	9.4	9.4	11.8	15.8
	Depth	in	26	28.8	26	28.8	38.7	41.9
Weight max.		lb	115	126	141	155	324	331
Connection, main line and return line	Thread		G¾	G¾	G¾	G¾	G1 ¼	G1 ¼
	Resistance	psi, °F	290, 248	290, 248	290, 248	290, 248	290, 248	290, 248
Connection, cooling water	Pressure	psi	29–73	29–73	29–73	29–73	29–73	29–73
	Thread		G⅜	G⅜	G⅜	G⅜	G¾	G¾
	Resistance	psi, °F	145, 212	145, 212	145, 212	145, 212	145, 212	145, 212
Connection, separate system water	Pressure	psi	29–73	29–73	29–73	29–73	29–73	29–73
	Thread		G¼	G¼	G¼	G¼	G½	G½
	Resistance	psi, °F	145, 212	145, 212	145, 212	145, 212	145, 212	145, 212
Connection, drain	Thread		G⅜	G⅜	G⅜	G⅜	G½	G½

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284 °F

Single units
Water, indirect cooling

Temperature control unit	Heat transfer medium		Water					
	Cooling		Indirect					
Type			**HB-140Z**					
	Housing size (P. 16, Fig. 5)		**1**	**1L**	**2**	**2L**	**3**	**4**
	with maximum main line temperature in °F		284	284	284	284	284	284
Heating (P. 14, Fig. 2)	kW	**8**	●	●				
		16			●	●	●	●
		32					○	○
Pump (60 Hz; all pumps are in stainless steel; P. 14, Fig. 3)								
	sealless (0,6 kW; 35 L/min, 68 m) 0.8 hp; 9.2 gpm, 99 psi	**2M**	●		●			
	sealless (1,1 kW; 55 L/min, 70 m) 1.5 hp; 15 gpm, 102 psi	**4M**	○		○ [1]		○	
	Eco-pump, sealless (1,1 kW; 60 L/min, 70 m) 1.5 hp; 16 gpm, 102 psi	**4S**		●		●		
	(2,8 kW; 110 L/min, 70 m) 3.8 hp; 29 gpm, 102 psi	**6G**					●	
	sealless (2,8 kW; 110 L/min, 70 m) 3.8 hp; 29 gpm, 102 psi	**6M**					○	
	(4,0 kW; 160 L/min, 70 m) 5.4 hp; 42 gpm, 102 psi	**8G**					○	
	sealless (4,0 kW; 160 L/min, 70 m) 5.4 hp; 42 gpm, 102 psi	**8M**					○	
	Eco-pump, sealless (2,2 kW; 220 L/min, 65 m) 3 hp; 58 gpm, 94 psi	**8R**						●
Cooling (P. 15, Fig. 4)	(30 kW @ 60 K) 8.5 tons @ 108 °F	**A2**	●	●	●	●	●	
	(50 kW @ 60 K) 14 tons @ 108 °F	**B2**			○	○	○	●
	(90 kW @ 60 K) 26 tons @ 108 °F	**C2**					○	○
Additional Equipment	Leak stopper	**ZL**	○	○	○ [3]	○ [3]		
	Connection for alarm and external control	**ZB**	○	○	○	○	○	○
	Connection for external sensor	**ZE**	○	○	○	○	○	○
	Interface DIGITAL	**ZD**	○	○	○	○	○	○
	Interface CAN	**ZC**	○	○	○	○	○	○
	Interface OPC UA	**ZO**	○	○	○	○	○	○
	Interface PROFIBUS-DP	**ZP**	○	○	○	○	○	○
	Pump status monitor	**ZU**	○	●	○	●	○	●
	Keyboard-protection	**ZK**	○	○	○	○	○	○
	Clean room package	**ZR**	○	○	○	○	○	○
	Mould evacuation with compressed air	**ZG**	○	○	○	○	○	○
Mains voltage	400 V (380–415 V), 60 Hz (50/60 Hz); 3LPE	**406**	○	○	○	○	○	○
	460 V (440–480 V), 60 Hz; 3LPE	**466**	●	●	●	●	●	●
	210 V (200–220 V), 60 Hz (50/60 Hz); 3LPE	**216**	○	○	○	○	○	○

Ordering example: HB-140Z4-32-8R-B2-ZD, 466, English

● Standard specification ○ Optional [1] Typical specification
[3] Not possible with: **B2** □ replaced by Thermo-6

Flow rate measurement	Measuring range	gpm	0.1–10.6	0.1–10.6	0.1–10.6	0.1–10.6	0.5–42	0.5–53
Circulating volume in unit	approx.	gal	0.4	0.4	0.55	0.55	1.7	1.7
Dimensions (P. 16, Fig. 5)	Height	in	20.1	20.1	27.6	27.6	33.5	25.6
	Width	in	7.1	7.1	9.4	9.4	11.8	15.8
	Depth	in	26	28.8	26	28.8	38.7	41.9
Weight max.		lb	121	132	148	161	342	353
Connection, main line and return line	Thread		G¾	G¾	G¾	G¾	G1 ¼	G1 ¼
	Resistance	psi, °F	290, 320	290, 320	290, 320	290, 320	290, 320	290, 320
Connection, cooling water	Pressure	psi	29–73	29–73	29–73	29–73	29–73	29–73
	Thread		G⅜	G⅜	G⅜	G⅜	G¾	G¾
	Resistance	psi, °F	145, 212	145, 212	145, 212	145, 212	145, 212	145, 212
Connection, separate system water	Pressure	psi	29–73	29–73	29–73	29–73	29–73	29–73
	Thread		G¼	G¼	G¼	G¼	G½	G½
	Resistance	psi, °F	145, 212	145, 212	145, 212	145, 212	145, 212	145, 212
Connection, drain	Thread		G⅜	G⅜	G⅜	G⅜	G½	G½

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320 °F

Single units
Water, indirect cooling

Temperature control unit	Heat transfer medium		Water					
	Cooling		Indirect					
Type			**HB-160Z**					
	Housing size (P. 16, Fig. 5)		**1**	**1L**	**2**	**2L**	**3**	**4**
	with maximum main line temperature in °F		320	320	320	320	320	320
Heating (P. 14, Fig. 2)	kW	**8**	●	●				
		16			●	●	●	●
		32					○	○
Pump (60 Hz; all pumps are in stainless steel; P. 14, Fig. 3)								
	sealless (0,6 kW; 35 L/min, 68 m) 0.8 hp; 9.2 gpm, 99 psi	**2M**	●		●			
	sealless (1,1 kW; 55 L/min, 70 m) 1.5 hp; 15 gpm, 102 psi	**4M**	○		○ [1]		●	
	Eco-pump, sealless (1,1 kW; 60 L/min, 70 m) 1.5 hp; 16 gpm, 102 psi	**4S**		●		●		
	sealless (2,8 kW; 110 L/min, 70 m) 3.8 hp; 29 gpm, 102 psi	**6M**					○ [1]	
	sealless (4,0 kW; 160 L/min, 70 m) 5.4 hp; 42 gpm, 102 psi	**8M**					○	
	Eco-pump, sealless (2,2 kW; 220 L/min, 65 m) 3 hp; 58 gpm, 94 psi	**8R**						●
Cooling (P. 15, Fig. 4)	(30 kW @ 60 K) 8.5 tons @ 108 °F	**A2**	●	●	●	●	●	
	(50 kW @ 60 K) 14 tons @ 108 °F	**B2**			○	○	○	●
	(90 kW @ 60 K) 26 tons @ 108 °F	**C2**					○	○
Additional Equipment	Leak stopper	**ZL**	○	○	○ [3]	○ [3]		
	Connection for alarm and external control	**ZB**	○	○	○	○	○	○
	Connection for external sensor	**ZE**	○	○	○	○	○	○
	Interface DIGITAL	**ZD**	○	○	○	○	○	○
	Interface CAN	**ZC**	○	○	○	○	○	○
	Interface OPC UA	**ZO**	○	○	○	○	○	○
	Interface PROFIBUS-DP	**ZP**	○	○	○	○	○	○
	Pump status monitor	**ZU**	○	●	○	●	○	●
	Keyboard-protection	**ZK**	○	○	○	○	○	○
	Clean room package	**ZR**	○	○	○	○	○	○
	Mould evacuation with compressed air	**ZG**	○	○	○	○	○	○
Mains voltage	400 V (380–415 V), 60 Hz (50/60 Hz); 3LPE	**406**	○	○	○	○	○	○
	460 V (440–480 V), 60 Hz; 3LPE	**466**	●	●	●	●	●	●
	210 V (200–220 V), 60 Hz (50/60 Hz); 3LPE	**216**	○	○	○	○	○	○

Ordering example: HB-160Z4-16-8R-B2-ZE-ZD, 466, English

● Standard specification ○ Optional [1] Typical specification
[3] Not possible with: **B2** □ replaced by Thermo-6

Flow rate measurement	Measuring range	gpm	0.1–10.6	0.1–10.6	0.1–10.6	0.1–10.6	0.5–42	0.5–53
Circulating volume in unit	approx.	gal	0.4	0.4	0.55	0.55	1.7	1.7
Dimensions (P. 16, Fig. 5)	Height	in	20.1	20.1	27.6	27.6	33.5	25.6
	Width	in	7.1	7.1	9.4	9.4	11.8	15.8
	Depth	in	26	28.8	26	28.8	38.7	41.9
Weight max.		lb	126	137	152	166	342	353
Connection, main line and return line	Thread		G¾	G¾	G¾	G¾	G1 ¼	G1 ¼
	Resistance	psi, °F	290, 356	290, 356	290, 356	290, 356	290, 356	290, 356
Connection, cooling water	Pressure	psi	29–73	29–73	29–73	29–73	29–73	29–73
	Thread		G⅜	G⅜	G⅜	G⅜	G¾	G¾
	Resistance	psi, °F	145, 212	145, 212	145, 212	145, 212	145, 212	145, 212
Connection, separate system water	Pressure	psi	29–73	29–73	29–73	29–73	29–73	29–73
	Thread		G¼	G¼	G¼	G¼	G½	G½
	Resistance	psi, °F	145, 212	145, 212	145, 212	145, 212	145, 212	145, 212
Connection, drain	Thread		G⅜	G⅜	G⅜	G⅜	G½	G½

356 °F

Single units
Water, indirect cooling

Temperature control unit	Heat transfer medium		Water		
	Cooling		Indirect		
Type			**HB-180Z**		
	Housing size (P. 16, Fig. 5)		**2**	**2L**	**3**
	with maximum main line temperature in °F		356	356	356
Heating (P. 14, Fig. 2)	kW	**8**	●	●	
		16	○ [1]	○ [1]	●
		32			○
Pump (60 Hz; all pumps are in stainless steel; P. 14, Fig. 3)					
	sealless (0,6 kW; 35 L/min, 68 m) 0.8 hp; 9.2 gpm, 99 psi	**2M**	●		
	sealless (1,1 kW; 55 L/min, 70 m) 1.5 hp; 15 gpm, 102 psi	**4M**	○ [1]		●
	Eco-pump, sealless (1,1 kW; 60 L/min, 70 m) 1.5 hp; 16 gpm, 102 psi	**4S**		●	
	sealless (2,8 kW; 110 L/min, 70 m) 3.8 hp; 29 gpm, 102 psi	**6M**			○ [1]
	sealless (4,0 kW; 160 L/min, 70 m) 5.4 hp; 42 gpm, 102 psi	**8M**			○
Cooling (P. 15, Fig. 4)	(30 kW @ 60 K) 8.5 tons @ 108 °F	**A2**	●	●	●
	(50 kW @ 60 K) 14 tons @ 108 °F	**B2**	○	○	○
	(90 kW @ 60 K) 26 tons @ 108 °F	**C2**			○
Additional Equipment					
	Connection for alarm and external control	**ZB**	○	○	○
	Connection for external sensor	**ZE**	○	○	○
	Interface DIGITAL	**ZD**	○	○	○
	Interface CAN	**ZC**	○	○	○
	Interface OPC UA	**ZO**	○	○	○
	Interface PROFIBUS-DP	**ZP**	○	○	○
	Pump status monitor	**ZU**	○	●	○
	Keyboard-protection	**ZK**	○	○	○
	Clean room package	**ZR**	○	○	○
	Mould evacuation with compressed air	**ZG**	○	○	○
Mains voltage	400 V (380–415 V), 60 Hz (50/60 Hz); 3LPE	**406**	○	○	○
	460 V (440–480 V), 60 Hz; 3LPE	**466**	●	●	●
	210 V (200–220 V), 60 Hz (50/60 Hz); 3LPE	**216**	○	○	○

Ordering example: HB-180Z3-32-6M-A2-ZD-ZU, 466, English

● Standard specification ○ Optional [1] Typical specification
□ replaced by Thermo-6

Flow rate measurement	Measuring range	gpm	0.1–10.6	0.1–10.6	0.5–42
Circulating volume in unit	approx.	gal	0.55	0.55	1.7
Dimensions (P. 16, Fig. 5)	Height	in	27.6	27.6	33.5
	Width	in	9.4	9.4	11.8
	Depth	in	26	28.8	38.7
Weight max.		lb	153	166	340
Connection, main line and return line	Thread		G¾	G¾	G1 ¼
	Resistance	psi, °F	363, 392	363, 392	363, 392
Connection, cooling water	Pressure	psi	29–73	29–73	29–73
	Thread		G⅜	G⅜	G¾
	Resistance	psi, °F	145, 212	145, 212	145, 212
Connection, separate system water	Pressure	psi	29–73	29–73	29–73
	Thread		G¼	G¼	G½
	Resistance	psi, °F	145, 212	145, 212	145, 212
Connection, drain	Thread		G⅜	G⅜	G½

392 / 446 °F

Single units
Water, indirect cooling

Temperature control unit	Heat transfer medium		Water	
	Cooling		Indirect	
Type			**HB-200Z**	**HB-230Z**
	Housing size (P. 16, Fig. 5)		**2B**	**2B**
	with maximum main line temperature in °F		392	446
Heating (P. 14, Fig. 2)	kW	**16**	●	●
Pump (60 Hz; all pumps are in stainless steel; P. 14, Fig. 3)				
	sealless (0,6 kW; 35 L/min, 68 m) 0.8 hp; 9.2 gpm, 99 psi	**2M**	●	●
	sealless (1,1 kW; 55 L/min, 70 m) 1.5 hp; 15 gpm, 102 psi	**4M**	○ [1]	○ [1]
	Eco-pump, sealless (1,1 kW; 60 L/min, 70 m) 1.5 hp; 16 gpm, 102 psi	**4S**	○	○
Cooling (P. 15, Fig. 4)	(30 kW @ 60 K) 8.5 tons @ 108 °F	**A2**	●	●
	(50 kW @ 60 K) 14 tons @ 108 °F	**B2**	○	○
Additional Equipment				
	Connection for alarm and external control	**ZB**	○	○
	Connection for external sensor	**ZE**	○	○
	Interface DIGITAL	**ZD**	○	○
	Interface CAN	**ZC**	○	○
	Interface OPC UA	**ZO**	○	○
	Interface PROFIBUS-DP	**ZP**	○	○
	Pump status monitor	**ZU**	○ [4]	○ [4]
	Keyboard-protection	**ZK**	○	○
	Clean room package	**ZR**	○	○
	Mould evacuation with compressed air	**ZG**	○	○
Mains voltage	400 V (380–415 V), 60 Hz (50/60 Hz); 3LPE	**406**	○	○
	460 V (440–480 V), 60 Hz; 3LPE	**466**	●	●
	210 V (200–220 V), 60 Hz (50/60 Hz); 3LPE	**216**	○	○

Ordering example: HB-230Z2B-16-4M-A2-ZE-ZD, 466, English

● Standard specification ○ Optional
[1] Typical specification [4] Included with: **4S**

Flow rate measurement	Measuring range	gpm	0.1–10.6	0.1–10.6
Circulating volume in unit	approx.	gal	0.42	0.42
Dimensions (P. 16, Fig. 5)	Height	in	27.6	27.6
	Width	in	11.8	11.8
	Depth	in	37.9	37.9
Weight max.		lb	265	265
Connection, main line and return line	Thread		G¾	G¾
	Resistance	psi, °F	450, 428	682, 482
Connection, cooling water	Pressure	psi	29–73	29–73
	Thread		G⅜	G⅜
	Resistance	psi, °F	145, 212	145, 212
Connection, separate system water	Pressure	psi	29–73	29–73
	Thread		G¼	G¼
	Resistance	psi, °F	145, 212	145, 212
Connection, drain	Thread		G⅜	G⅜

392 / 482 °F

Single units
Oil, indirect cooling

Temperature control unit	Heat transfer medium		Oil	
	Cooling		Indirect	
Type			**HB-200T**	**HB-250T**
	Housing size (P. 16, Fig. 5)		**2**	**3**
	with maximum main line temperature in °F		392	482
Heating (P. 14, Fig. 2)	kW	**8**	●	●
		16		○
Pump (60 Hz; all pumps are in stainless steel; P. 14, Fig. 3)				
	sealless (0,6 kW; 35 L/min, 68 m) 0.8 hp; 9.2 gpm, 99 psi	**2M**	●	●
	sealless (1,1 kW; 55 L/min, 70 m) 1.5 hp; 15 gpm, 102 psi	**4M**	○	○
Cooling (P. 15, Fig. 4)	(34 kW @ 120 K) 10 tons @ 216 °F	**A3**	●	●
	(60 kW @ 120 K) 17 tons @ 216 °F	**C3**		○
Additional Equipment				
	Connection for alarm and external control	**ZB**	○	○
	Connection for external sensor	**ZE**	○	○
	Interface DIGITAL	**ZD**	○	○
	Interface CAN	**ZC**	○	○
	Interface OPC UA	**ZO**	○	○
	Interface PROFIBUS-DP	**ZP**	○	○
	Pump status monitor	**ZU**	○	○
	Keyboard-protection	**ZK**	○	○
Mains voltage	400 V (380–415 V), 60 Hz (50/60 Hz); 3LPE	**406**	○	○
	460 V (440–480 V), 60 Hz; 3LPE	**466**	●	●
	210 V (200–220 V), 60 Hz (50/60 Hz); 3LPE	**216**	○	○

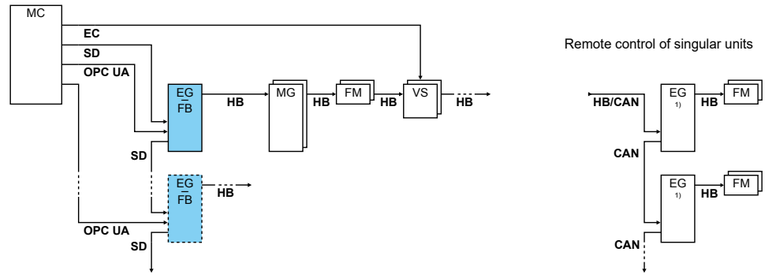
Ordering example: HB-250T3-8-2M-A3-ZE-ZD-ZU, 466, English

● Standard specification ○ Optional

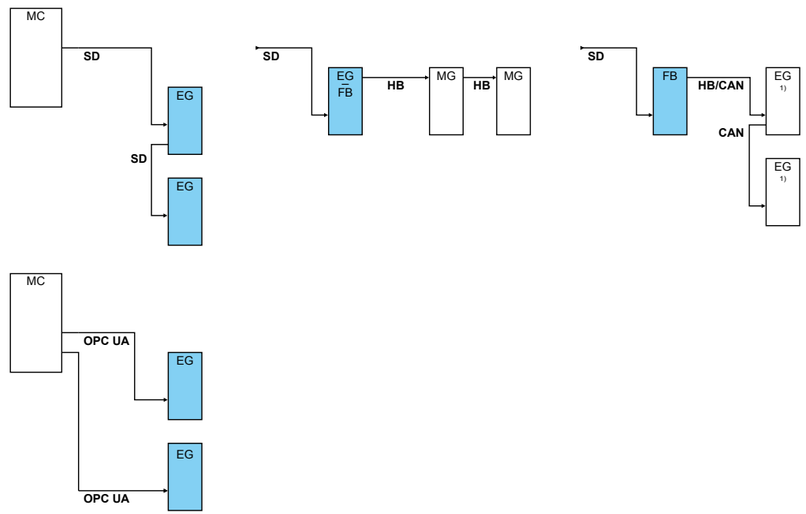
Flow rate measurement	Measuring range	gpm	0.1–10.6	0.1–10.6
Circulating volume in unit	approx.	gal	0.42	0.92
Volume of internal expansion tank	approx.	gal	1.45	4.0
Dimensions (P. 16, Fig. 5)	Height	in	27.6	33.5
	Width	in	9.4	11.8
	Depth	in	26.9	37.2
Weight max.		lb	131	223
Connection, main line and return line	Thread		G¾	G¾
	Resistance	psi, °F	145, 428	145, 518
Connection, cooling water	Pressure	psi	29–73	29–73
	Thread		G⅜	G⅜
	Resistance	psi, °F	145, 212	145, 212
Connection, drain	Thread		G⅜	G½

Communication (Fig. 1)

Basic circuit diagram



Examples



Legend	Description	Note
MC	Machine control	max. 1
FB	Control modul Panel-5	max. 1
EG	Temperature control unit Thermo-5, singular unit	max. 16 (per command)
MG	Temperature control unit Thermo-5, modular unit	
FM	Flow meter Flow-5	max. 32 (at 4 circuits each)
VS	Switching unit Vario-5	max. 8
SD	Communication via serial data interface DIGITAL (**ZD**), CAN (**ZC**), PROFIBUS-DP (**ZP**)	Maximum number of units, operating range and transfer of flow rate values depend on machine control and protocol
OPC UA	Communication OPC UA via Ethernet (**ZO**)	
HB [2]	Communication interface HB	Order of connection is not relevant
HB/CAN [2]	Communication interface HB/CAN	To remotely control singular units
CAN	Communication interface CAN (**ZC**)	
EC	External control	Assignment dependent on machine control unit

Command [1] Command deactivated [2] max. length cable HB: Total 50 m (164 ft)

Heating Capacity, Electricity Supply (Fig. 2)

For temperature control units equipped with a frequency converter, we recommend using a Type B Residual Current Device (RCD). Type A RCDs are not suitable for this. The leakage current is a maximum of 5 mA per unit.

The heating capacity applies at rated voltage (400 V, 460 V or 210 V) and varies max. ±10 % within the range indicated.

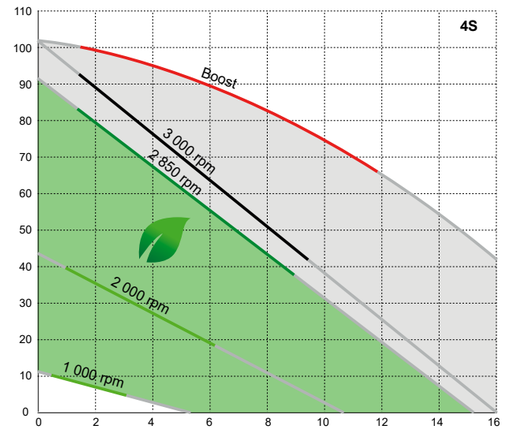
Maximum fusing; Cross-section through unit mains cable (with mains voltage)

Heating	**400 V or 460 V**	**220 V**
8 kW	3x20 A; 2,5 mm² (AWG 12)	3x32 A; 6 mm² (AWG 10)
16 kW	3x32 A; 6 mm² (AWG 10)	3x63 A; 16 mm² (AWG 4)
32 kW	3x63 A; 16 mm² (AWG 4)	3x125 A; 50 mm² (AWG 0)

Pump Capacity Curve (Fig. 3)

Eco-pump, Variable speed Eco-pump (Energy efficiency class IE4)

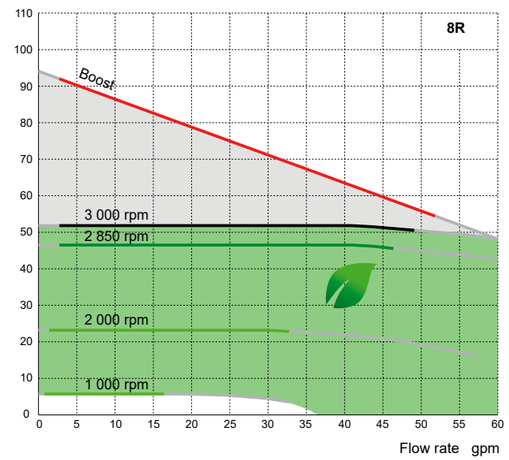
Pump pressure psi



In Eco-mode the unit will control the speed depending on either actual speed or flow rate or pump pressure or temperature difference between main line and return line.
Energy savings are announced and registered.

- Energy savings range
- High power range
- Boost-mode (max. speed)
- Normal operation (2 850 rpm)

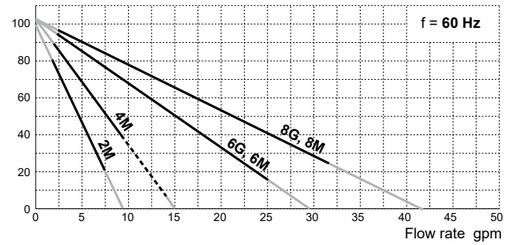
Pump pressure psi



HB-Therm®
THERMO-5

Fixed speed pumps

Pump pressure psi

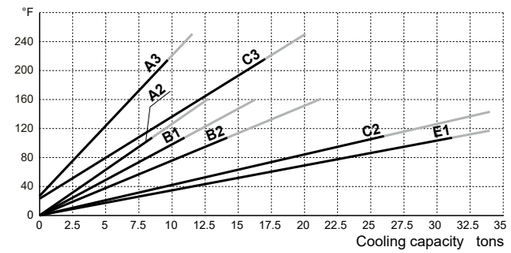


The pump pressures for oil units are different (usually lower) than when using water due to the varying density of the heat transfer oil. Depending on the used oil and the working temperature the density ranges at 70–105 % of that of water. The pump pressures will change to the same degree.

- Achievable practical values
- Achievable practical values with housing size 3

Cooling Capacity (Fig. 4)

Temperature difference between heat transfer medium and cooling water



Cooling water quantity at 29 psi:

A2	3.2 gpm
A3	3.7 gpm
B1	2.4 gpm
B2	4.2 gpm
C2	9 gpm
C3	4.2 gpm
E1	7.1 gpm

- Achievable practical values

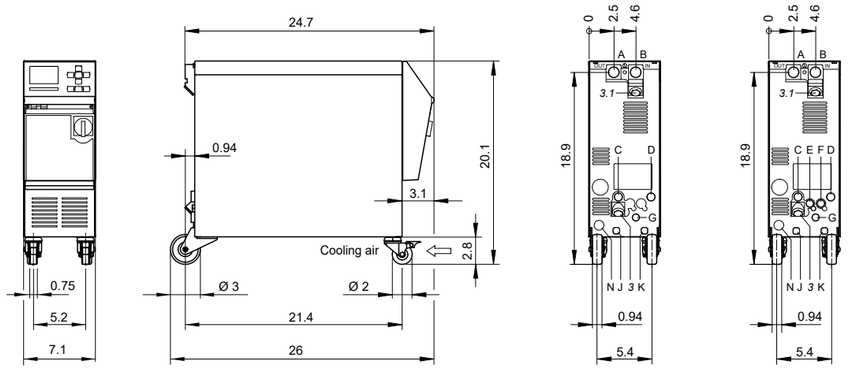
General Technical Data

Mains cable to unit		3LPE, 13.1 ft (4 m)
Environment	Temperature range	41–104 °F (5–40 °C)
	Relative humidity	35–85 % RH (non-condensing)
Colour	Cover	RAL 7035 (glossy light grey), RAL 5012 (glossy light blue)
	Control panel	RAL 7012 (basalt grey)
	Access cover	RAL 7021 (glossy black grey)
Continuous sound pressure level		<70 dB(A)
Protection class		IP 44
Standards (depending on unit type)		EN 12828, EN 12953-6, EN 60204-1, EN IEC 60730-2-9, EN IEC 61000-6-2, EN IEC 61000-6-4, EN ISO 12100, EN IEC 63000, EN ISO 13732-1, DIN 4754
Certification/Approval		CE
Temperature measurement	Resolution	0.1 °F
	Control accuracy	±0.2 °F
	Tolerance	±1.4 °F
Flow rate measurement	Resolution	0.1 gpm
	Tolerance: Housing size 1, 1L, 2, 2L, 2B	±(5 % of measured value + 0,026 gpm)
	Tolerance: Housing size 3, 4	±(5 % of measured value + 0,132 gpm)
Pump pressure indicator	Tolerance	±10 % of rated value

Dimensions (Fig. 5)

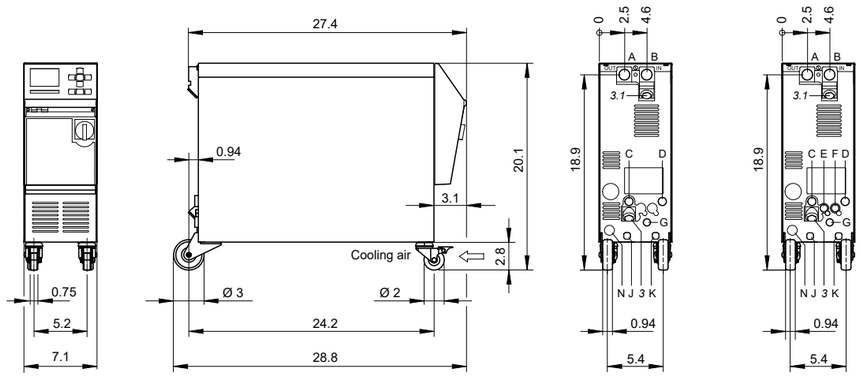
Housing size 1, scale 1:15

HB-100X1 | HB-___Z1



Housing size 1L, scale 1:15

HB-100X1L | HB-___Z1L



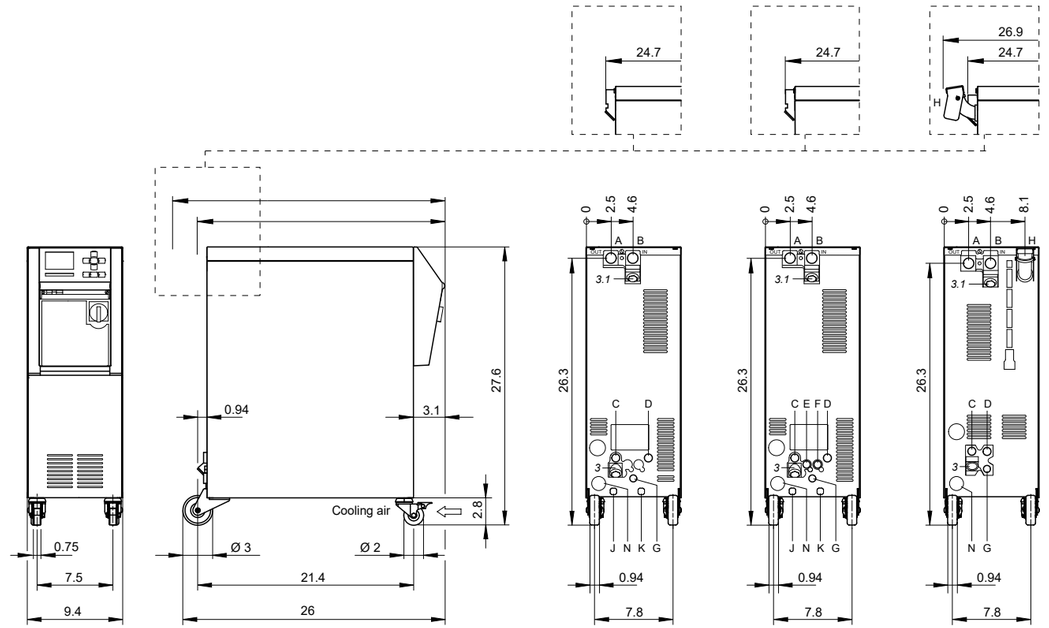
A Main line
B Return line
C Cooling water inlet
D Cooling water outlet
E System water inlet
F System water outlet
G Drain
H Filling (on oil units)
J Compressed air inlet (**ZG**)
K Compressed air outlet (**ZG**)
N Mains connection cable
3 Filter cooling water inlet
3.1 Filter return line

Note: 3D data available

HB-Therm®
THERMO-5

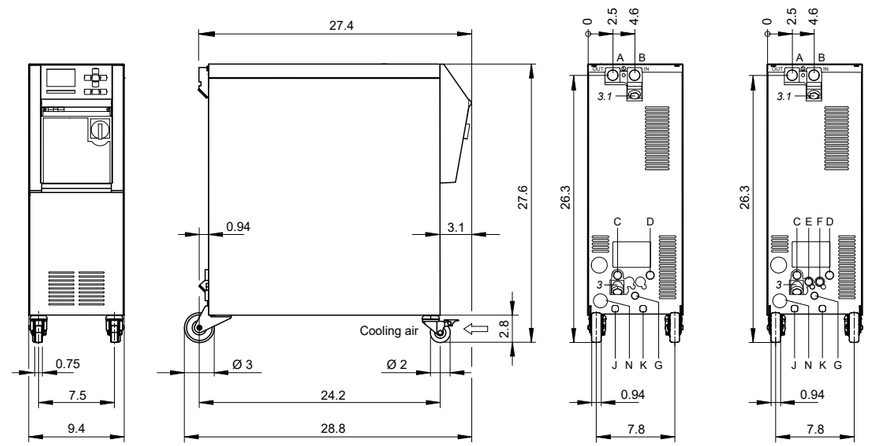
Housing size 2, scale 1:15

HB-100X2 | HB-___Z2 | HB-200T2



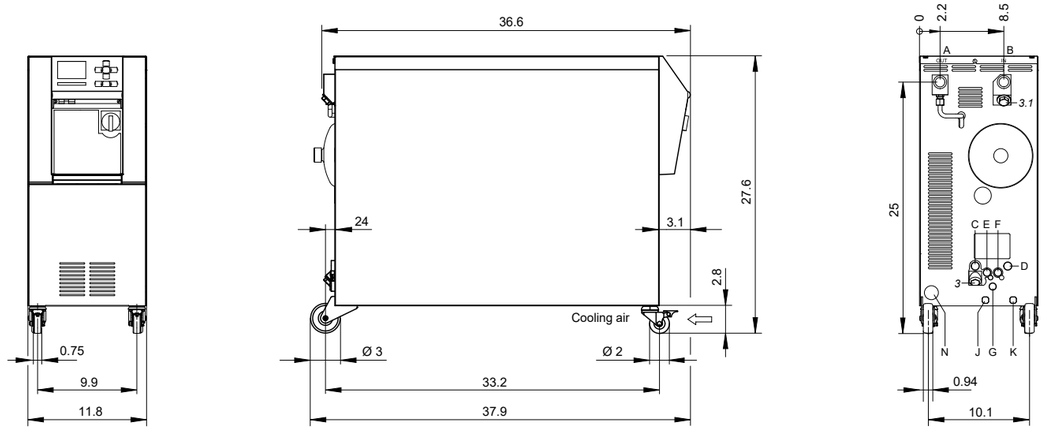
Housing size 2L, scale 1:15

HB-100X2L | HB-___Z2L



Housing size 2B, scale 1:15

HB-__Z2B

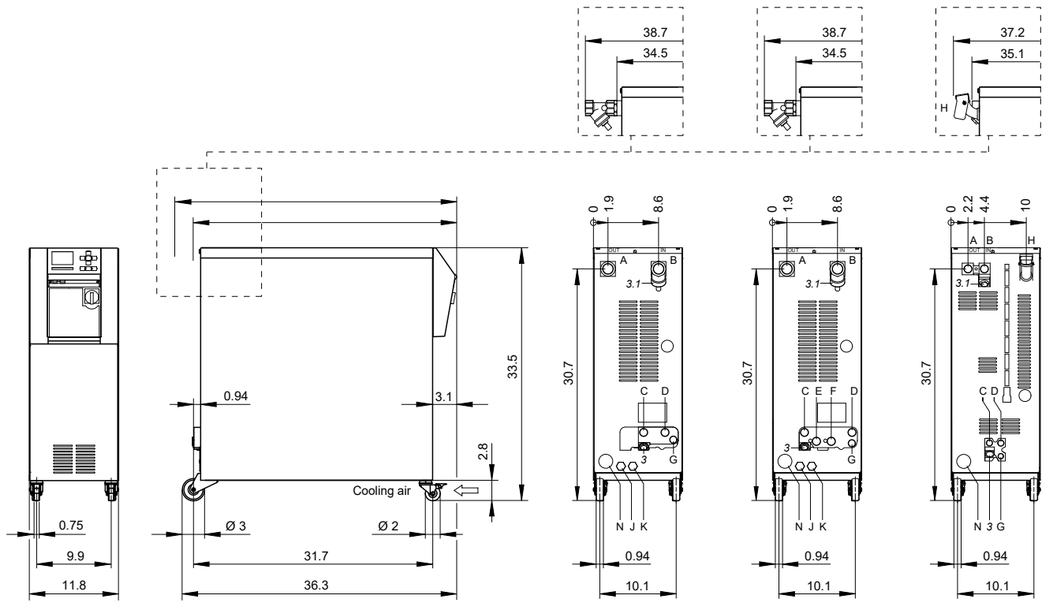


Housing size 3, scale 1:20

HB-100X3

HB-__Z3

HB-250T3



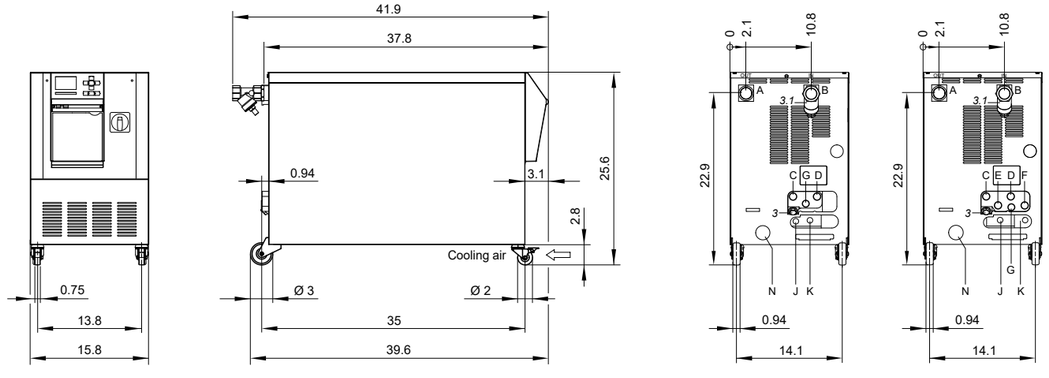
A Main line
B Return line
C Cooling water inlet
D Cooling water outlet
E System water inlet
F System water outlet
G Drain
H Filling (on oil units)
J Compressed air inlet (**ZG**)
K Compressed air outlet (**ZG**)
N Mains connection cable
3 Filter cooling water inlet
3.1 Filter return line

Note: 3D data available

Housing size 4, scale 1:20

HB-100X4

HB-__Z4



Accessories

Electrical and hydraulic connections and other accessories.

Knowledge (Database)

An online portal with many useful documents available for free download, including operating manuals, 3D models, device software, and much more.

hb-therm.com

Website with information about the company, products, and services.

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